

**THE PREVALENCE OF HEART DISEASE AND STROKE: ASSESSING THE FATALITY AND
REMEDIAL STRATEGIES FOR ADULTS AND ELDERLY PEOPLE IN AKWA IBOM STATE**

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Abstract

This study examined the prevalence of heart disease and stroke, assessing the fatality and remedial strategies for adults and elderly people in Akwa Ibom State. Descriptive survey design was adopted to carry out this research. The study was carried out in Akwa Ibom State. The targeted population comprised all medical personnel comprising both Medical Doctors and Nurses in Akwa Ibom State. Stratified sampling technique was used to select 10 Medical Doctors and 20 Nurses from each of the three senatorial districts of the State. This gave a total of 90 respondents which made up the sample size used for this research. The instrument used for data collection was a structured questionnaire titled "Prevalence of Heart Disease and Stroke Questionnaire (PHDSQ)". Face and content validation of the instrument was carried out by an expert in test, measurement, and evaluation in order to ensure that the instrument has the accuracy, appropriateness, and completeness for the study under consideration. The reliability coefficient obtained was 0.91, and this was high enough to justify the use of the instrument. The researcher subjected the data generated for this study to appropriate statistical technique such as descriptive analysis to answer research questions. The study concluded that effective preventive and therapeutic strategies, such as lifestyle modifications, medications, and surgical interventions, are crucial in reducing these diseases' impact. The result of the data analysis revealed that "impact on physical health" was the most prominent effect of heart disease and stroke on human health. It also showed that "Eluding stress and harmful behaviours" was the highest preventive measures to heart disease and stroke in human being. And lastly, it revealed that "medication adherence and management" was the most prominent strategic way to control heart disease and stroke in human being. One of the recommendations made was that governments and health organisations should prioritise public health campaigns that educate individuals about heart disease and stroke risk factors, including the importance of a balanced diet, regular exercise, and avoiding tobacco.

Keyword: Heart Disease, Stroke, Fatality, Prevalence and Remedial Strategies

Introduction

Due to their high global death rates, heart disease and stroke rank among the most important global health issues. Regardless of age, gender, or socioeconomic background, millions of people are impacted by the startlingly high incidence of these disorders. According to the World Health Organisation (WHO), cardiovascular diseases,

including heart disease and stroke, are the leading causes of death globally, responsible for approximately 17.9 million deaths annually (WHO, 2023). These figures highlight the urgency for comprehensive preventive and remedial strategies aimed at curbing the devastating effects of these illnesses.

Heart disease is a broad term encompassing several conditions, including coronary artery disease, arrhythmias, and heart failure. Each of these can significantly impair quality of life, leading to disability or fatality if not effectively managed. The Centres for Disease Control and Prevention (CDC) reported that in the United States alone, heart disease is responsible for one in every four deaths, underscoring its severe impact (CDC, 2023). Stroke, on the other hand, is often a consequence of untreated or poorly managed heart disease. If immediate intervention is unavailable, the disruption of blood flow to the brain can lead to severe physical and cognitive impairments, or even death (DeSai and Hays, 2023).

The global prevalence of heart disease and stroke has been influenced by several risk factors, including lifestyle choices, genetic predisposition, and environmental factors. Lifestyle factors, such as a high-fat diet, lack of physical activity, and smoking, are significant contributors to cardiovascular disease (Sharifi-Rad, Rodrigues, Sharopov, Docea, Can Karaca, Sharifi-Rad, Kahveci Karıncaoglu, Gülseren, Şenol, Demircan, Taheri, Suleria, Özçelik, Nur, Gültekin-Özgüven, Daşkaya-Dikmen, Cho, Martins & Calina, 2020). Additionally, genetic factors play a considerable role in an individual's susceptibility to these conditions, with certain genetic markers predisposing individuals to higher risk (NIDA, 2023). Environmental influences, including socioeconomic status and access to healthcare, also contribute to the varying prevalence and fatality rates across regions and populations. Fatality rates associated with heart disease and stroke vary widely across countries, depending largely on access to healthcare services, public health interventions, and levels of awareness. Developing countries, particularly those in sub-Saharan Africa and South Asia, face disproportionately high mortality rates due to limited access to timely medical care and preventive measures (Dahab and Sakellariou 2020).

Heart disease and stroke can be treated with a variety of preventative, therapeutic, and rehabilitative approaches. Promoting a healthy lifestyle, supporting dietary modifications to lower risk factors, and encouraging regular exercise are the main goals of preventive methods. Drugs including cholesterol-lowering medicines and antihypertensives have also demonstrated effectiveness in controlling risk factors and averting complications related to cardiovascular illnesses. This paper seeks to assess the prevalence, fatality rates, and current remedial strategies for heart disease and stroke. By examining these facets, this study aims to identify effective approaches to reduce the impact of these conditions on a global scale. Understanding the complexities surrounding heart disease and stroke is crucial for developing tailored interventions that address the unique risk factors and healthcare challenges faced by diverse populations worldwide.

Statement of Problem

The rising prevalence of heart disease and stroke among adults and the elderly in Akwa Ibom State poses a significant public health challenge, with fatality rates escalating alarmingly. Despite advancements in medical science, inadequate awareness, poor access to healthcare, and lifestyle factors such as unhealthy diets and physical

inactivity exacerbate the burden of these conditions. Compounded by socio-economic disparities, many individuals lack timely diagnosis and treatment, leading to preventable deaths. Furthermore, existing remedial strategies are often fragmented, underfunded, and fail to address the unique needs of vulnerable populations. This study seeks to critically evaluate the drivers of these life-threatening conditions, assess their impact on affected communities, and propose sustainable, evidence-based interventions tailored to the state's socio-cultural context.

Objectives

1. To find out the effect of heart disease and stroke on human health
2. To assess the preventive measures to heart disease and stroke in human being
3. To identify the strategic ways to controls heart disease and stroke in human being

Research Questions

1. What are the effects of heart disease and stroke on human health?
2. What are the preventive measures to heart disease and stroke in human being?
3. What are the strategic ways to controls heart disease and stroke in human being?

Hypothesis

H1 There is no significant effect of heart disease and stroke on human health

LITERATURE REVIEW

Concept of heart disease

Heart disease refers to a range of conditions that affect the heart, including coronary artery disease (caused by the buildup of plaque in the coronary arteries), heart failure (a condition where the heart is unable to pump blood efficiently), arrhythmias (irregular heartbeats), and valvular heart diseases (which affect the heart valves). These conditions can lead to significant morbidity and mortality if not properly managed. Heart disease is often linked to risk factors such as hypertension, diabetes, high cholesterol, smoking, and a sedentary lifestyle (Sundararajan, 2023). Heart disease is the umbrella term for a variety of heart-related illnesses. Heart illness include conditions affecting the blood vessels, such coronary artery disease. The term arrhythmia refers to irregular heartbeats. Congenital heart defects are cardiac abnormalities that are present from birth.

Heart disease encompasses a variety of conditions that affect the heart's structure and function, including coronary artery disease, heart failure, ventricular disorders, and arrhythmias. The most common form of heart disease is coronary artery disease (CAD), where the blood vessels supplying the heart become narrowed or blocked, often due to plaque buildup. This leads to reduced blood flow and can result in heart attacks, chest pain (angina), or heart failure. Key risk factors include high blood pressure, smoking, high cholesterol, diabetes, and a family history of cardiovascular issues (Mozaffarian, 2022).

Concept of stroke

A stroke is a sudden neurological deficit caused by an interruption of blood flow to the brain, resulting in the death or dysfunction of brain cells. There are two primary types of stroke: ischaemic stroke, which occurs due to the blockage of blood vessels (such as by a clot or embolism), and hemorrhagic stroke, which occurs due to bleeding in or around the brain. The clinical manifestation depends on the area of the brain affected, leading to various motor, sensory, cognitive, and speech impairments (Alberts & Majoie, 2022). A stroke can occur when blood flow to the brain is blocked or there is sudden bleeding in the brain.

According to Holland (2024), a stroke is a disruption of blood flow to a part of the brain. Symptoms can come on quickly and without warning. Recognising stroke symptoms and seeking treatment quickly can lead to a better outcome. When a blood artery in the brain bursts and bleeds, or when the blood flow to the brain is blocked, a stroke happens. The brain's tissues cannot get blood or oxygen because of the rupture or obstruction. A stroke is defined as "a clinical syndrome characterised by the sudden onset of neurological deficits caused by an interruption of blood flow to the brain. It is typically classified into two types: ischaemic, resulting from a blockage of blood vessels, and hemorrhagic, resulting from bleeding within or around the brain" (Alberts, 2021). A stroke is "a rapid loss of brain function due to a disruption in the blood supply, which can either result from ischaemia (blocked blood flow) or haemorrhage (bleeding).

Concept of fatality

The term "fatality" refers to a number of mortality-related issues, particularly those that are associated with health hazards, accidents, and environmental disasters. Rates or risk ratios, which represent the probability of dying under particular circumstances, such as being exposed to a virus or in the event of an accident, are frequently used to analyse mortality. Meyerowitz-Katz and Merone (2020) explore fatality through infection fatality rates (IFR) and case fatality rates (CFR), emphasising the utility of these metrics in assessing disease severity and impact during the COVID-19 pandemic. The IFR considers deaths among all infected individuals, including asymptomatic cases, whereas CFR only considers diagnosed cases, offering a nuanced understanding of public health threats in infectious disease contexts.

In risk management, fatality is also assessed through models that predict fatal outcomes from large-scale environmental disasters or infrastructure failures. For instance, the Bradford Fatality Scale, discussed by Horlick-Jones and Peters (2019), is used to classify and measure disaster-related deaths by integrating socio-economic factors. This model helps policymakers anticipate and reduce mortality by providing information about trends that increase risks, such as socioeconomic vulnerability. These models show that social and economic factors that affect people's exposure to and resistance to catastrophic events also have an impact on fatality, which is not only a measure of biological or physical injury.

Types of Heart Disease

Heart disease refers to a range of conditions that affect the heart's structure and function. The most common types of heart disease include coronary artery disease, heart failure, and arrhythmias. Below is an overview of the main types of heart disease:

Heart Failure: It occurs when the heart does not pump blood as well as it should to meet your body's needs. It is usually caused by coronary artery disease, but it can also happen because you have thyroid disease, high blood pressure, heart muscle disease (cardiomyopathy), or certain other conditions.

Heart Valve Disease: The heart has four valves that open and close to direct blood flow; between the human heart are four chambers, the lungs, and blood vessels. An abnormality could make it hard for a valve to open and close the right way. When that happens, the blood flow could be blocked or blood can leak. A person valve may not open and close right.

Endocarditis: This is an infection that's usually caused by bacteria, which may enter the blood and take root in your heart during illness, after surgery, or after using intravenous drugs. It often happens if you already have valve problems. Antibiotics can usually cure it, but the disease is life-threatening without treatment (James, 2023)

Arrhythmia: Arrhythmia refers to an irregular heartbeat. It occurs when the electrical impulses that coordinate the heartbeat do not work correctly. As a result, the heart may beat too quickly, too slowly, or erratically. A person may notice a feeling like a fluttering or racing heart. In some cases, arrhythmias can be life-threatening or have severe complications.

Dilated cardiomyopathy: In dilated cardiomyopathy, the heart chambers become dilated, meaning that the heart muscle stretches and becomes thinner. The most common causes of dilated cardiomyopathy are past heart attacks, arrhythmias, and toxins, but genetics can also play a role. As a result, the heart becomes weaker and cannot pump blood properly. It can result in arrhythmia, blood clots in the heart, and heart failure (Kohli and Felman 2023).

Types of stroke

A stroke is a medical emergency that occurs when a blood clot or damaged blood vessel disrupts blood flow to the brain, ultimately affecting its function. The brain needs constant blood flow to receive oxygen and nutrients, and a stroke. Here are various types of strokes:

Ischaemic Stroke: Ischaemic strokes occur when blood flow to part of the brain is blocked due to a clot or narrowing of blood vessels, leading to brain cell death. There are two types of ischaemic stroke, which are thrombotic and embolic. The thrombotic stroke occurs when a blood clot (thrombus) forms in one of the brain's arteries, often due to atherosclerosis (plaque buildup), while the embolic stroke occurs when a clot or other debris from another part of the body (typically the heart) travels through the bloodstream and lodges in a brain artery, blocking blood flow. (Yaghi, Boehme, & Elkind, 2019)

Hemorrhagic Stroke: Hemorrhagic strokes occur when a blood vessel in the brain ruptures, leading to bleeding within or around the brain. This can increase pressure in the skull and cause significant brain damage. There are two types of hemorrhagic stroke, namely intracerebral haemorrhage and subarachnoid haemorrhage. Intracerebral haemorrhage occurs when an artery in the brain bursts, flooding the surrounding tissue with blood, while subarachnoid haemorrhage occurs when there is

bleeding in the space between the brain and the thin tissues covering it, often due to a ruptured aneurysm. (Lazzaro & Lansberg 2021).

Transient Ischaemic Attack (TIA): A TIA is often referred to as a "mini-stroke." It is a temporary blockage of blood flow to the brain, which resolves before permanent damage occurs. However, TIAs are serious warnings that a full-blown stroke may occur in the future (Bae & Lee 2020).

Brain Stem Stroke: A stroke in the brainstem, where vital functions like breathing, heartbeat, and swallowing are controlled, can cause a variety of symptoms, including difficulty moving parts of the body and even paralysis. Brainstem strokes may result in locked-in syndrome, where the individual remains conscious but unable to move or communicate.

Cerebellar Stroke: A cerebellar stroke affects the cerebellum, the part of the brain that controls balance and coordination. Symptoms can include dizziness, ataxia (lack of muscle coordination), and difficulty walking. (Song et al., 2023).

Effect of heart disease and stroke on human health

Heart disease and stroke remain leading causes of morbidity and mortality globally, exerting profound effects on human health. These cardiovascular conditions are closely linked to lifestyle factors such as diet, physical inactivity, smoking, and stress, as well as genetic predisposition and age (Benjamin, 2019). Heart disease and stroke have pervasive effects on human health, impacting physical, mental, and socioeconomic well-being. These conditions are associated with high mortality rates and long-term health challenges. An outline of the primary effect of heart disease and stroke on human health is provided below:

Impact on Physical Health

Heart disease and stroke primarily affect the cardiovascular system but also have extensive repercussions throughout the body. Heart disease, encompassing conditions such as coronary artery disease, arrhythmias, and heart failure, can reduce blood flow and oxygen supply to vital organs, leading to fatigue, chest pain, and reduced physical stamina. Chronic heart conditions can also lead to multi-organ dysfunction over time, affecting the kidneys, liver, and lungs (Roger, 2020). Stroke, a condition in which blood flow to the brain is interrupted, results in brain tissue damage that can lead to both temporary and permanent physical disabilities. The severity of disabilities varies, ranging from mild impairments in coordination and balance to severe paralysis, speech difficulties, and loss of vision or memory (Feigin, 2019). Additionally, stroke survivors often face prolonged periods of rehabilitation to regain basic physical and cognitive functions, which can be challenging and, in some cases, incomplete, thus impacting their independence and quality of life.

Mental and emotional health effects

Beyond physical health, heart disease and stroke significantly affect mental health, often leading to depression, anxiety, and reduced emotional well-being. Patients with heart disease frequently experience fear and anxiety about their condition and potential complications, which can exacerbate symptoms and lead to poorer outcomes (Huffman,

2021). The psychological toll of heart disease and the lifestyle modifications required for management can further contribute to stress and feelings of helplessness. For stroke survivors, cognitive impairments are common, particularly affecting memory, attention, and executive function. Such impairments can lead to depression and social isolation, as individuals may struggle with everyday tasks and lose independence. Studies indicate that post-stroke depression affects approximately one-third of stroke survivors, highlighting the critical need for mental health support within cardiovascular care (Towfighi, 2018).

Socioeconomic and Quality of Life Implications

The socioeconomic impact of heart disease and stroke on individuals and families is substantial. Patients often require long-term care, which includes medication, rehabilitation, and sometimes assisted living, all of which can impose significant financial burdens. Additionally, the disabilities resulting from these conditions can limit a person's ability to work or perform daily activities, diminishing their overall quality of life (Xu, 2021). Heart disease and stroke also place a strain on healthcare systems due to their high prevalence and the need for emergency care, surgical interventions, and chronic management. As these conditions are often preventable through lifestyle changes and early intervention, preventive healthcare strategies focusing on risk factors such as hypertension, obesity, and smoking cessation are increasingly emphasised by public health organisations.

Effect of heart disease and stroke in human fatality

Cardiovascular diseases (CVDs) are the leading cause of death globally. Heart disease and stroke are part of a group of cardiovascular diseases. People with heart disease are at a higher risk for stroke, and people with stroke have a higher risk of heart disease. Heart disease and stroke can result in poor quality of life, disability, and death. Heart disease affects the heart's ability to pump blood to other parts of the body, while stroke affects the ability to move and feel. Below are the effects of heart disease and stroke on human fatality:

Myocardial Infarction (Heart Attack) and Brain Tissue Damage with Swelling

As stated by Ojha & Dhamoon (2023), myocardial infarction (MI), colloquially known as "heart attack," is caused by decreased or complete cessation of blood flow to a portion of the myocardium. Myocardial infarction is a dangerous heart disease that may be "silent" and go undetected, or it could be a catastrophic event leading to haemodynamic deterioration and sudden death. The impacts of a stroke and how they affect mobility and quality of life are often quite visible. Moawad (2024) stated that strokes occur when the blood supply to the brain is interrupted. Strokes may also prove fatal. When toxins attack the brain during a stroke, the brain naturally tries to repair itself. However, the brain's attempt to heal produces an exaggerated inflammatory response, which ultimately can lead to cerebral oedema (the medical term for brain swelling, or swelling that happens in part or all of the brain because of excessive fluid buildup in the tissue). It can be life-threatening and requires immediate treatment.

Sudden Cardiac Arrest (SCA) alongside Respiratory and Cardiovascular Complications

Sudden cardiac arrest (SCA) is an abrupt and unexpected loss of heart function. It occurs unexpectedly and stops the heart from beating normally, stopping blood flow to the heart and brain, leading to a loss of consciousness and collapse. As stated by Weghorst (2024), once the heart fails, the rest of the body does not get the blood it needs to function. People with existing heart disease, particularly coronary artery disease, are at heightened risk for SCA. It is estimated that nearly 325,000 cases of sudden cardiac death occur annually in the U.S. alone. Stroke can lead to sleep disordered breathing such as central or obstructive sleep apnoea, which affects the respiratory system. Stroke (lacunar subtype) also induces heart problems in up to 70% of patients, with clinical manifestations such as ECG (electrocardiogram) changes, reduced LVEF (left ventricular ejection fraction), ventricular wall motion abnormalities, and increases in serum cardiac enzymes.

Heart Failure Coupled with Systemic Inflammatory Response and Immune Dysfunction

Heart disease can cause coronary artery disease, which is the most common cause of heart failure. The disease results from the buildup of fatty deposits in the arteries. The deposits narrow the arteries. This reduces blood flow and can lead to heart attack. Cherney (2024) stated that heart failure occurs when the heart is unable to pump an adequate supply of blood to the body. Heart failure usually happens because the heart has become too weak or stiff. The systemic inflammatory response and immune dysfunction significantly impact stroke outcomes, playing a crucial role in determining the severity of the injury and the subsequent recovery process. Following a stroke, particularly an ischaemic stroke, the body undergoes a complex and multifaceted cascade of immune responses that can lead to both local and systemic inflammation.

The prevalence of heart disease and stroke

Heart disease and stroke are among the leading causes of morbidity and mortality worldwide, affecting millions of individuals each year. These conditions are linked to a range of risk factors, including lifestyle habits, genetics, and social determinants of health. Understanding their prevalence is essential for developing effective public health strategies aimed at reducing their burden.

Global Burden of Heart Disease and Stroke

Heart disease and stroke are among the leading causes of death and disability worldwide. According to the World Health Organisation (WHO), cardiovascular diseases (CVDs) are responsible for an estimated 17.9 million deaths annually, accounting for 32% of all global deaths. Of these, coronary heart disease (CHD) and stroke are the two primary contributors (World Health Organisation, 2023). Heart disease is particularly prevalent in high-income countries, while stroke remains a common health issue in low- and middle-income nations. This global distribution underscores the need for targeted prevention and intervention strategies.

Risk Factors Driving Prevalence

Several modifiable and non-modifiable risk factors contribute to the high prevalence of heart disease and stroke. Lifestyle choices such as smoking, poor diet, physical

inactivity, and excessive alcohol consumption are significant contributors. Stroke prevalence is also higher in women than in men in many regions, particularly in high-income countries where women tend to live longer (Feigin et al., 2019). Additionally, conditions like hypertension, diabetes, obesity, and high cholesterol increase susceptibility. Non-modifiable factors, including age, gender, and genetic predisposition, further exacerbate the risk, leading to a steady rise in cases globally (Oluwaseun, 2020).

Impact of socioeconomic and environmental factors

Socioeconomic disparities play a crucial role in the prevalence of these diseases. Limited access to healthcare, lack of education about preventive measures, and insufficient resources for healthy living contribute to higher rates of heart disease and stroke in marginalised populations. Environmental factors such as pollution and urbanisation also influence the rise in cardiovascular conditions, emphasising the need for public health policies addressing these broader determinants.

Consequences for Public Health Systems

The widespread prevalence of heart disease and stroke imposes a significant burden on public health systems. According to a study by Huang (2022), hypertension is the most important modifiable risk factor for both ischaemic and hemorrhagic strokes, contributing to the development of stroke in approximately 50% of cases globally. The prevalence of heart disease also varies by region. For instance, in the United States, cardiovascular diseases are prevalent in about 48% of adults. The costs associated with treatment, rehabilitation, and loss of productivity are immense, straining healthcare budgets worldwide. This highlights the importance of prioritising prevention and management strategies, including regular health screenings, public awareness campaigns, and improving access to quality medical care.

Preventive measures to heart disease and stroke in human being

According to the World Health Organisation (2023), heart attacks and strokes are usually acute events and are mainly caused by a blockage that prevents blood from flowing to the heart or brain. Preventive measures against heart disease and stroke encompass lifestyle changes and medical interventions aimed at reducing risk factors. These diseases share many of the same risk factors, so preventive efforts often overlap. By incorporating these measures, individuals can significantly lower their chances of experiencing cardiovascular events. Some preventive measures include:

Adequate balanced diet: maintaining a balanced diet is essential. As stated by Mendis (2024), a healthy diet should provide proteins, carbohydrates, fibre, fat, fluids, and micronutrients (minerals and vitamins) from a range of food groups. A heart-healthy diet includes fruits, vegetables, whole grains, lean proteins, and healthy fats like those found in olive oil and nuts. Reducing intake of trans fats, sugars, and salt is equally important. Excessive salt can raise blood pressure, a major contributor to stroke, while trans fats and sugars contribute to cholesterol buildup, leading to heart disease. Fibre-rich foods can help reduce cholesterol levels, while potassium-rich foods help regulate blood pressure.

Physical activity: Physical activity is another crucial preventive measure. Regular exercise strengthens the heart, improves circulation, and helps maintain a healthy

weight, which reduces strain on the heart and arteries. Aerobic exercises like walking, running, swimming, and cycling are especially beneficial. The American Heart Association recommends at least 150 minutes of moderate aerobic activity per week. Engaging in regular exercise can also help regulate blood sugar levels, which is crucial for preventing diabetes-related complications in the heart and brain.

Eluding stress and harmful behaviours: Managing stress and avoiding harmful behaviours, such as smoking and excessive alcohol consumption, are also important. Chronic stress releases hormones that can increase blood pressure and heart rate, while smoking damages blood vessels, leading to plaque buildup. Additionally, excessive alcohol consumption can lead to high blood pressure and irregular heart rhythms. Developing healthy coping mechanisms for stress such as meditation, hobbies, or counselling and moderating alcohol intake can significantly decrease these risks.

Regular health checkup: Regular health screenings for blood pressure, cholesterol, and blood sugar levels can catch early signs of risk factors before they escalate. High blood pressure often has no symptoms but can lead to both heart disease and stroke if untreated. Similarly, high cholesterol and blood sugar levels increase plaque buildup in the arteries. Regular check-ups allow for early intervention and management, often through medication if lifestyle changes alone are insufficient.

Adequate sleep and weight management: Adequate sleep and weight management play a supportive role in heart health. Poor sleep quality and excess weight are linked to higher risks of high blood pressure, diabetes, and inflammation, all of which are risk factors for heart disease and stroke. Aim for 7–8 hours of quality sleep per night and maintain a body mass index (BMI) within a healthy range. Together, these measures form a comprehensive approach to reducing the likelihood of cardiovascular events and promoting overall well-being.

Strategic controls of heart disease and stroke in human being

Strategic controls for managing heart disease and stroke are systematic approaches to reducing risks, managing existing conditions, and ensuring long-term cardiovascular health. Unlike preventive measures, which are mainly lifestyle-focused, strategic controls often involve more structured interventions and regular monitoring. By implementing these controls, individuals and healthcare providers can better manage cardiovascular health risks and mitigate the progression of disease. The following are strategic controls of heart disease and stroke in humans:

Personalised care: implementing personalised care plans tailored to individual risk factors. For individuals with high blood pressure, diabetes, or obesity, healthcare providers can design specific programs that address these conditions through a combination of lifestyle adjustments and medical treatments. As explained by George (2017), providing the right care at the right time is critical; one challenge to this is the fragmentation of stroke care. For instance, a person with hypertension might be prescribed medication and a salt-restricted diet, while someone with diabetes might receive dietary counselling alongside glucose-regulating medications. This targeted approach helps address the unique factors contributing to each individual's cardiovascular risk.

Medication adherence and management: Medication adherence and management represent another vital control. Many patients at risk for heart disease and stroke are prescribed medications like statins, anticoagulants, or antihypertensives to control cholesterol, prevent blood clots, or manage blood pressure. Adhering to these prescriptions as directed is essential for the medication to be effective. Strategic controls include periodic consultations with healthcare providers to assess medication effectiveness and adjust dosages or types as needed. This active approach helps prevent adverse events and maintains optimal cardiovascular health.

Regular monitoring: Regular monitoring through diagnostics and screenings is another strategic control that allows for early detection and intervention. Tests such as electrocardiograms (EKGs), echocardiograms, cholesterol panels, and blood pressure monitoring provide valuable insights into heart and vascular health. For individuals at high risk, consistent tracking can reveal warning signs before they lead to severe complications. This data also allows healthcare providers to adjust treatment plans promptly, reducing the likelihood of sudden or severe cardiovascular events.

Medical education and patient empowerment: medical education and patient empowerment are additional strategic controls, emphasising the role of knowledge in health management. Educating patients on recognising warning signs, understanding the importance of lifestyle adjustments, and knowing when to seek medical assistance equips them with tools to manage their health proactively. Medical education of physicians, nurses, and health workers should be strengthened, along with similar approaches in educating patients and their families (Gupta & Yusuf, 2019). **Community and workplace health programs:** implementing community and workplace health programs can serve as a broader strategic control. Programs focused on promoting heart health awareness, regular screenings, and offering resources like smoking cessation support or exercise facilities can reduce heart disease and stroke incidences across populations. These initiatives encourage early identification of risks, empower individuals to make health-conscious decisions, and create supportive environments that facilitate ongoing management of heart health.

Methodology

Descriptive survey design was adopted to carry out this research. The study was carried out in Akwa Ibom State. The targeted population comprised all medical personnel comprising both Medical Doctors and Nurses in Akwa Ibom State. Stratified sampling technique was used to select 10 Medical Doctors and 20 Nurses from each of the three senatorial districts of the State. This gave a total of 90 respondents which made up the sample size used for this research. The instrument used for data collection was a structured questionnaire titled "Prevalence of Heart Disease and Stroke Questionnaire (PHDSQ)". Face and content validation of the instrument was carried out by an expert in test, measurement, and evaluation in order to ensure that the instrument has the accuracy, appropriateness, and completeness for the study under consideration. The reliability coefficient obtained was 0.91, and this was high enough to justify the use of the instrument. The researcher subjected the data generated for this study to appropriate statistical technique such descriptive analysis to answer research questions.

Research Questions 1: The research question sought to find out the effect of heart disease and stroke on human health. To answer the research percentage analysis was performed on the data, (see table 1).

Table 1: Descriptive statistics of the Effect of heart disease and stroke on human health

EFFECTS	FREQUENCY	PERCENTAGE (%)
Impact on Physical Health	65	29.55**
Mental and emotional health effects	32	14.55*
Socioeconomic and Quality of Life Implications	46	20.91
TOTAL	143	100%

** The highest percentage frequency

* The least percentage frequency

SOURCE: Field Survey

The above table 1 presents the percentage analysis of the effect of heart disease and stroke on human health. From the result of the data analysis, it was observed that "Impact on Physical Health" 65(29.55%) was rated as the highest effect of heart disease and stroke on human health, while "Mental and emotional health effects" 32(14.55%) was rated the least. The result therefore is in agreement with the research findings of numerous scholars including Roger (2020), who stated that stroke, a condition in which blood flow to the brain is interrupted, results in brain tissue damage that can lead to both temporary and permanent physical disabilities. He further stated that chronic heart conditions can also lead to multi-organ dysfunction over time, affecting the kidneys, liver, and lung.

Research Questions 2: The research question sought to find out the preventive measures to heart disease and stroke in human being. To answer the research percentage analysis was performed on the data, (see table 2).

Table 2: Descriptive statistics of the preventive measures to heart disease and stroke in human being

MEASURES	FREQUENCY	PERCENTAGE (%)
Adequate balanced diet	32	17.11
Physical activity	42	22.45
Eluding stress and harmful behaviours	53	28.34**
Regular health checkup	24	12.83*
Adequate sleep and weight management	36	19.25
TOTAL	187	100%

** The highest percentage frequency

* The least percentage frequency

SOURCE: Field Survey

The above table 2 presents the percentage analysis of the **preventive measures to heart disease and stroke in human being**. From the result of the data analysis, it was observed that "Eluding stress and harmful behaviours" 53(28.34%) was rated as the highest **preventive measures to heart disease and stroke in human being**, while "Regular health checkup" 24(12.83%) was rated the least. The result therefore is in agreement with the research findings of numerous scholars who mentioned that chronic stress releases

hormones that can increase blood pressure and heart rate, while smoking damages blood vessels, leading to plaque buildup.

Research Questions 3: The research question sought to find out the strategic controls of heart disease and stroke in human being. To answer the research percentage analysis was performed on the data, (see table 3).

Table 3: Descriptive statistics of the strategic controls of heart disease and stroke in human being

STRATEGY	FREQUENCY	PERCENTAGE (%)
Personalised care	47	24.74
Medication adherence and management	55	28.95**
Regular monitoring	35	18.42
Medical education and patient empowerment	31	16.32
Community and workplace health programs	22	11.58*
TOTAL	190	100%

** The highest percentage frequency

* The least percentage frequency

SOURCE: Field Survey

The above table 3 presents the percentage analysis of the strategic controls of heart disease and stroke in human being. From the result of the data analysis, it was observed that “Medication adherence and management” 55(28.95%) was rated as the most prominent strategic way to control heart disease and stroke in human being, while “Community and workplace health programs” 22(11.58%) was rated the least. The result therefore is in agreement with the research findings of numerous scholars who noted that adhering to medical prescriptions as directed is essential for the medication to be effective.

Conclusion

The result of the data analysis revealed that “impact on physical health” is the most prominent effect of heart disease and stroke on human health. It also showed that “Eluding stress and harmful behaviours” is the highest preventive measures to heart disease and stroke in human being. And lastly, it revealed that “medication adherence and management” is the most prominent strategic way to control heart disease and stroke in human being. Heart disease and stroke continue to pose major global health risks, contributing to millions of deaths each year across diverse populations. These conditions are driven by lifestyle, genetic, and environmental factors, with mortality rates varying widely, especially in regions with limited healthcare access. Effective preventive and therapeutic strategies, such as lifestyle modifications, medications, and surgical interventions, are crucial in reducing these diseases' impact. This study emphasises the need for targeted, comprehensive approaches to mitigate heart disease and stroke, aiming to lower fatality rates and enhance the quality of life worldwide.

Recommendations

1. Governments and health organisations should prioritise public health campaigns that educate individuals about heart disease and stroke risk factors, including the importance of a balanced diet, regular exercise, and avoiding tobacco. Community-based programs and digital platforms can play a pivotal role in raising awareness and encouraging lifestyle changes to prevent these conditions.
2. Expanding access to healthcare services, especially in rural and low-income areas, is essential for early detection and effective management of heart disease and stroke. This includes providing affordable screenings for blood pressure, cholesterol, and other cardiovascular risk factors, as well as ensuring timely access to emergency care.
3. Continued investment in research for innovative treatment and prevention methods is critical. Governments and private sectors should support the development of advanced medical technologies, medications, and therapeutic interventions that improve patient outcomes, focusing on reducing both the prevalence and fatality rates of heart disease and stroke.

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